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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,286	11/19/2003	Gabriel L. Romero	LSI.87US01 (03-0760)	1213
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LSI CORPORATION 1621 BARBER LANE MS: D-106 MILPITAS, CA 95035			EXAMINER MOLL, JESSE R	
			ART UNIT 2181	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/718,286

Applicant(s)

ROMERO ET AL.

Examiner

Jesse R. Moll

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 May 2007 has been entered.

2. Claims 1-6 have been examined.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claims 1-6, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). For the purpose of examination, Examiner gives these limitations no weight as being mere examples of "various operations".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by IEEE (IEEE Standard Test Access Port and Boundary-Scan Architecture).

8. Regarding claim 1, IEEE discloses a process for controlling a multiple core expander (see page 14, fig. 4-1) comprising: using a test port (Path between TDI and TDO)

Note that the definition of "port" according to The Free On-line Dictionary of Computing, © 1993-2005 is "A logical channel or channel endpoint in a communications system." According to this definition, the connection path through all components from TDI and TDO can be considered a port.

Of said multiple core expander to receive operational codes (Instructions; see page 36, section 8) including a dummy bit from a host computer (source of data) into a multi-bit shift register (Instruction Register, see page 18, Figure 5-1) and a single bit shift register (Bypass Register, see page 62, Figure 9-1 and second paragraph;

Note that the Test data registers shown in Figure 5-1 include all registers shown in Figure 9-1. It is clear from the figures that the serial data is clocked into all registers.)

to said multiple core expander to put all but one core of said multiple core expander in bypass mode (Bypass instruction; see pages 38-39, section 8.4); decoding the operational input codes (Instruction Decode; see page 18; Fig 5-1) by a state machine (any processing logic can be considered a state machine; further, Figure 6-1 on page 19 shows different states of the controller) of the core expander not placed in bypass mode (any active [not bypassed] component would need to decode instructions); serially reading data from (Sample instruction; see pages 41-43; section 8.6), and serially writing data to (Preload instruction; see pages 43-45; section 8.7), at least one internal register (boundary scan registers) of said one core by the state machine; and the state machine inputting a control signal to a multiplexer (see page 18, figure 5-1 and page 62, Figure 9-1) to shift data to the output port (TDO) of the core expander not placed in bypass mode to either a series connected core expander or back to the host computer (see page 14, Figure 4-1); and connecting internal registers to an expander bus (see page 43; last paragraph; rule b) wherein the internal registers store data that is used to operate the expanders for the performance of various operations (such as the operation described in 8.7.2; page 45).

9. Regarding claim 2, IEEE discloses a method of controlling the operation of a dual expander having a first expander core and a second expander core (first two components; see page 14, fig. 4-1) by reading and writing control bits through a single

test port (see above regarding claim 1) in said dual expander comprising: placing one of said first expander core and said second expander core in bypass mode (see above regarding claim 1) utilizing a single bit shift register (see page 62, third paragraph); transmitting a serial data stream of said control bits through said test port to a shift register (Instruction Register, see page 18, fig. 5-1) to generate a control byte for the expander core that is not in bypass mode (see above regarding claim 1); parallel shifting said control byte from said shift register to a control register (see page 23, Update-IR section) in one of said first and second expander cores that is not in bypass mode; providing dummy bits as needed in said serial data stream to correctly form said control byte (see page 39; section 8.4.2); and connecting internal registers to an expander bus (see page 43; last paragraph; rule b) wherein the internal registers store data that is used to operate the expanders for the performance of various operations (such as the operation described in 8.7.2; page 45).

Note that all devices in bypass mode only require one bit (dummy bit) in the serial stream and the only real data is for the device not in bypass mode. Further note that the term "as needed" renders the use of dummy bits unnecessary because if they are not used, they are inherently not needed.

10. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by CYGNAL (Programming FLASH through the JTAG Interface).

11. Regarding claim 3, CYGNAL discloses a process for performing a register write operation (Indirect Write, see page 8) in a first expander core (isolated device) of a dual expander comprising: serially shifting operational code bits (BYPASS instruction for all

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other devices in the chain) into a test port (TDI), said operational code bits including instructions with a dummy bit (padding; see page 19, first paragraph; page 18, Figure 22) from a hot computer (whatever is sending the TDI signal) into a multi-bit shift register (Instruction register of Bypassed device) and a single bit register (Instruction register of Bypassed device; see fig. 22) to place a second expander core, in said dual expander, in bypass mode (JTAG_IR_Scan function, see pages 38-40); generating an operational byte (the BYPASS opcode)

Note that typically a byte consists of 8 bits, but can also be used to describe the smallest addressable memory segment in a computer. In this case, a single instruction can be considered a byte.

From said operational code bits; placing said second expander core in bypass mode in response to said operational byte (see page 39, last 4 lines); serially shifting control bits (Write Data yyyy, see page 9, fig. 10; page 39), address bits (xxx; see page 9, fig. 10; page 39) and write command bits (11; see page 8, IndOpCode Decoding; page 41 regarding appending 'WRITE' opcode to data) into said test port; reading the serially shifted control bits by a state machine (the device; any computing device is merely a complicated state machine) generating a control byte from said control bits by the state machine and an address byte from said address bits (see page 6 regarding loading data and instruction registers after the data is serially shifted to them);

Note that as stated above, the control bits and address bits are fed into the Shift_IR and Shift_DR.

Writing said control byte by the state machine to a register in said first expander core at an address indicated by said address byte (see page 8, Indirect Write section,

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first 2 lines); and connecting internal registers to an expander bus (any shift register such as the Instruction Register; see figure 22; page 18) wherein the internal registers store data that is used to operate the expanders for the performance of various operations (such as programming a device in the chain; see page 17).

12. Claim 4 recites equivalent limitations as claim 3 and is therefore rejected under the same grounds.

Note that the names "first expander" and "second expander" do not limit the invention, but merely state different labels for an element. Therefore, both claims are anticipated by communication of any device of a JTAG chain. Further note that while the limitations are claimed in different order in claims 3 and 4, there is no limitation which places these elements of the process in a specific chronological order.

13. Claims 5 and 6 recite equivalent limitations as claims 3 and 4 but claim the method of reading a register instead of writing it. These claims are anticipated by the Indirect Read instruction (see page 8). The two operations are equivalent except for the following:

Operation code is "10" instead of "11" (see page 18).

The data is read serially read from the register in the isolated expander core at the address indicated by the address byte (as claimed, see page 8, first 2 lines of Indirect Read section; pages 49-50).

Note that the read and write operations are executed using the same function (JTAG_DR_Scan).

14. Claims 1 and 2 recite similar and less broad limitations as claims 3-6 with the exception of the following limitations:

“to put all but one core of said multiple core expander in bypass mode”, which is disclosed by CYGNAL (see JTAG_IR_Scan; page 38);

“parallel shifting said control byte from said shift register to a control register”, which is disclosed by CYGNAL (Update-DR; see page 5, fig. 6);

“decoding the operational input codes by a state machine of the core expander not placed in bypass mode” which is inherent in the system of CYGNAL (since instructions must be decoded in order to be used);

and “the state machine inputting a control signal to a multiplexer to shift data to the output of the core expander not placed in bypass mode to either a series connected core expander or back to the host computer” which is disclosed by CYGNAL; see page 18; Figure 22)

Note that the output of each device is chosen (with a multiplexer) and then output a series connected core expander.

Response to Arguments

15. Applicant's arguments filed 30 April 2007 have been fully considered but they are not persuasive. See the rejection above for a detailed analysis of the amended claims.

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16. Regarding the limitation "for performance of various operations such as adjusting slew rate, delay time, etc.", Examiner disagrees that this distinguishes the application over the prior art of record. It is unclear how it limits the claims because it merely states examples of various operations. Additionally, the examples are open-ended because the list is concluded with an etcetera. Although the language is unclear, the claim, as best understood, is not limited by this list of examples. For more information, see above regarding the rejection under 35 U.S.C. 112, second paragraph.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse R. Moll whose telephone number is (571)272-2703. The examiner can normally be reached on M-F 10:00 am - 6:30 pm EST.

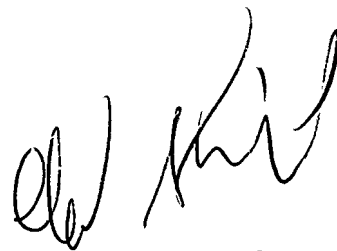
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571)272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jesse R Moll
Examiner
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JM 8/14/2007



ALFORD KINDRED
PRIMARY EXAMINER